

1. A method for manufacturing a molecular film pattern comprising:

2. A method for manufacturing a molecular film pattern comprising:

[Chemical 1]



$m$  is an integer of 0 or more;

$p$  is an integer of 0 or more;

Ar is an aryl group;

R is a hydrogen atom or a fluorine atom;

X is a halogen group such as a chlorine group, an amino group, or an alkoxy group;

Y is an alkyl group, an aryl group, or a hydrogen atom; and

Z is an alkyl group, a perfluoroalkyl group, a silyl group, a cyano

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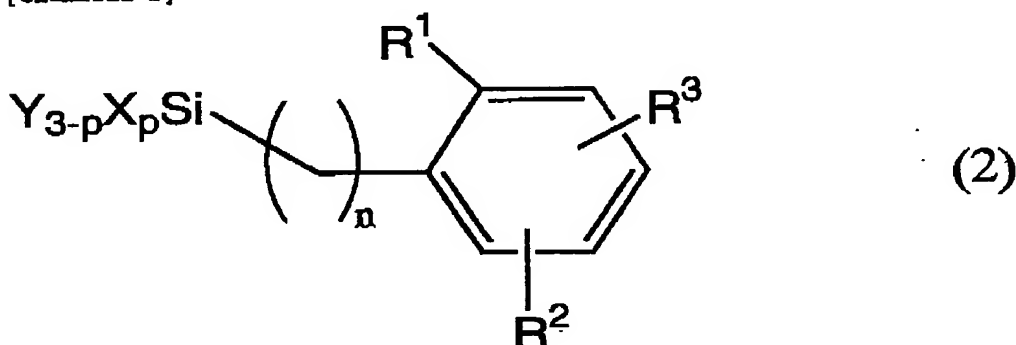
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group, an amino group, or a thiol group.

3. A method for manufacturing a molecular film pattern comprising:

a step of forming a molecular film by using an organic silicon compound as a starting material, the organic silicon compound having a chemical structure represented by the following formula (2); and a step of irradiating the molecular film with a light;

[Chemical 2]



wherein  $n$ ,  $p$ ,  $R^1$ ,  $R^2$ ,  $R^3$ ,  $X$ , and  $Y$  in the formula are as follows:

$n$  is an integer of 0 or more;

$p$  is an integer of 0 or more;

$R^1$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxy group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, or an alkyl group containing an alkylamino group;

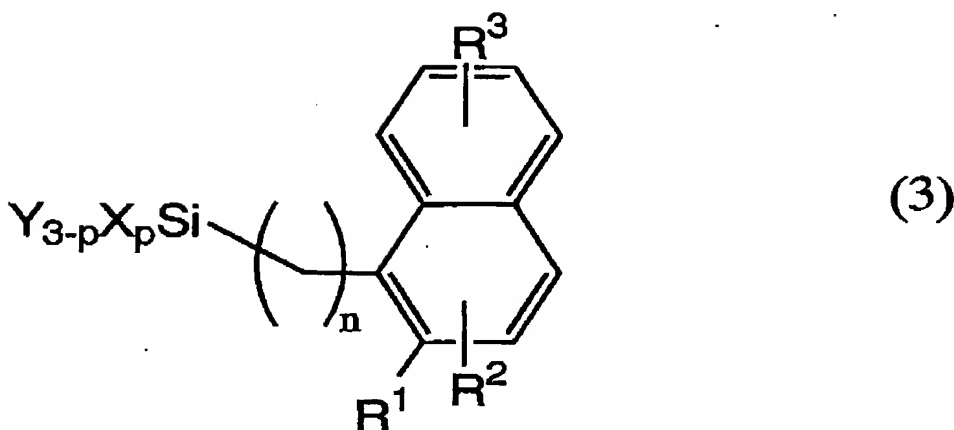
$R^2$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxy group, an alkyl group containing a hydroxyl group, an alkyl

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[Chemical 3]

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wherein  $n$ ,  $p$ ,  $R^1$ ,  $R^2$ ,  $R^3$ ,  $X$ , and  $Y$  in the formula are as follows:

$n$  is an integer of 0 or more;

$p$  is an integer of 0 or more;

$R^1$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, or an alkyl group containing an alkylamino group;

$R^2$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, an alkyl group containing an alkylamino group, an organic silicon group, or an alkyl group containing an organic silicon group;

$R^3$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an

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alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, an alkyl group containing an alkylamino group, an organic silicon group, or an alkyl group containing an organic silicon group;

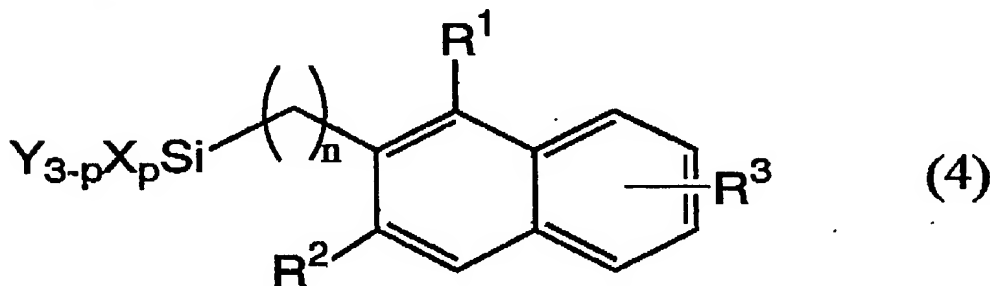
X is a halogen group such as a chlorine group, an amino group, or an alkoxyl group; and

Y is an alkyl group or an aryl group.

5. A method for manufacturing a molecular film pattern comprising:

a step of forming a molecular film by using an organic silicon compound as a starting material, the organic silicon compound having a chemical structure represented by the following formula (4); and a step of irradiating the molecular film with a light;

[Chemical 4]



wherein  $n$ ,  $p$ ,  $R^1$ ,  $R^2$ ,  $R^3$ ,  $X$ , and  $Y$  in the formula are as follows:

$n$  is an integer of 0 or more;

$p$  is an integer of 0 or more;

$R^1$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl

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$R^2$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxy group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, an alkyl group containing an alkylamino group, an organic silicon group, or an alkyl group containing an organic silicon group;

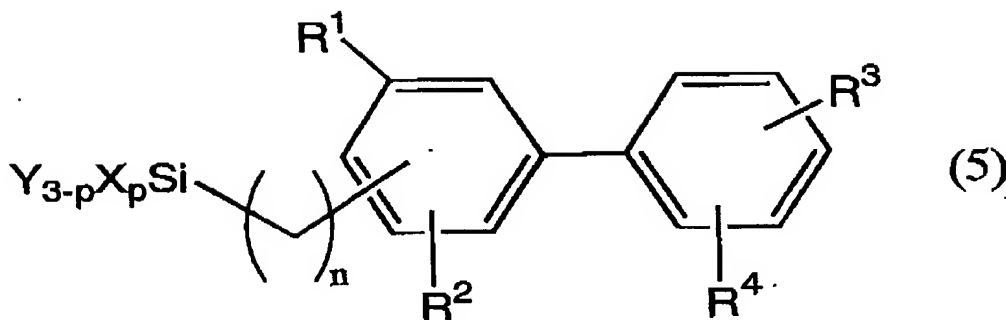
X is a halogen group such as a chlorine group, an amino group, or an alkoxy group; and

6. A method for manufacturing a molecular film pattern comprising:

[Chemical 5]

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wherein  $n$ ,  $p$ ,  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $x$ , and  $Y$  in the formula are as follows:

$n$  is an integer of 0 or more;

$p$  is an integer of 0 or more;

$R^1$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, or an alkyl group containing an alkylamino group;

$R^2$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, an alkyl group containing an alkylamino group, an organic silicon group, or an alkyl group containing an organic silicon group;

$R^3$  is a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, an alkyl group

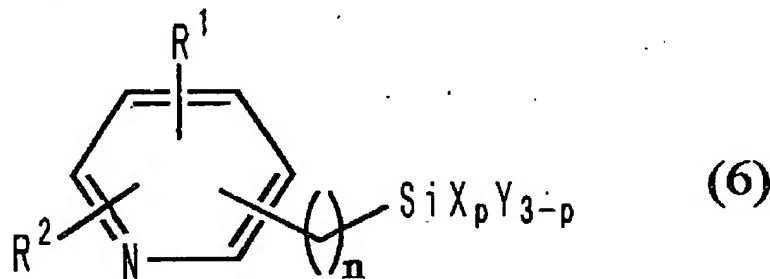
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group containing an organic silicon group;

x is a halogen group such as a chlorine group, an amino group, or an alkoxy group; and

7. A method for manufacturing a molecular film pattern comprising:

[Chemical 6]



$n$  is an integer of 0 or more;



$R^1$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxy group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, or an alkyl group containing an alkylamino group;

X is a halogen group such as a chlorine group, an amino group, or an alkoxy group; and

8. A method for manufacturing a molecular film pattern comprising:

[Chemical 7]



Y is an alkyl group or an aryl group; and

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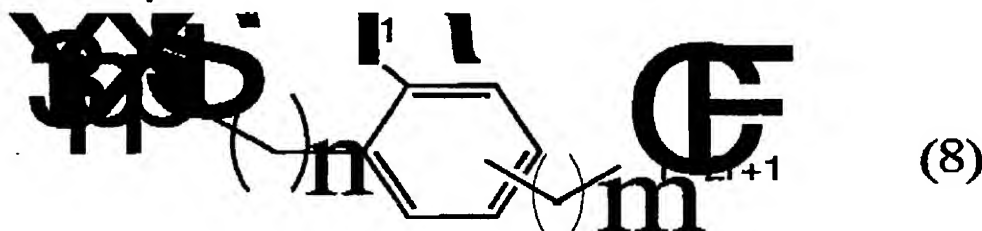
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Q is a nitrogen (N) atom, an oxygen (O) atom, or a sulfur (S) atom, each having a hydrogen atom or an alkyl group.

9. A method for manufacturing a molecular film pattern comprising:

a step of forming a molecular film by using an organic silicon compound as a starting material, the organic silicon compound having a chemical structure represented by the following formula (8); and a step of irradiating the molecular film with a light;

[Chemical 8].



wherein  $n$ ,  $m$ ,  $r$ ,  $p$ ,  $R^1$ ,  $X$ , and  $Y$  in the formula are as follows:

$n$  is an integer of 0 or more;

$m$  is an integer of 0 or more;

$r$  is a positive integer;

$p$  is an integer of 0 or more;

$R^1$  is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, or an alkyl group containing an alkylamino group;

$X$  is a halogen group such as a chlorine group, an amino group, or an alkoxyl group; and

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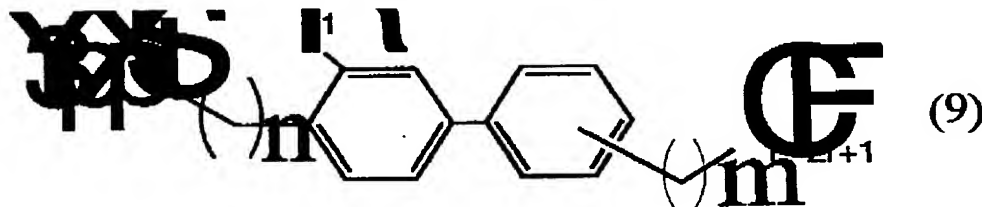
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Y is an alkyl group or an aryl group.

10. A method for manufacturing a molecular film pattern comprising:

a step of forming a molecular film by using an organic silicon compound as a starting material, the organic silicon compound having a chemical structure represented by the following formula (9); and a step of irradiating the molecular film with a light;

[Chemical 9]



wherein n, m, r, p, R<sup>1</sup>, X, and Y in the formula are as follows:

n is an integer of 0 or more;

m is an integer of 0 or more;

r is a positive integer;

p is an integer of 0 or more;

R<sup>1</sup> is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxy group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, or an alkyl group containing an alkylamino group;

X is a halogen group such as a chlorine group, an amino group, or an alkoxy group; and

Y is an alkyl group or an aryl group.

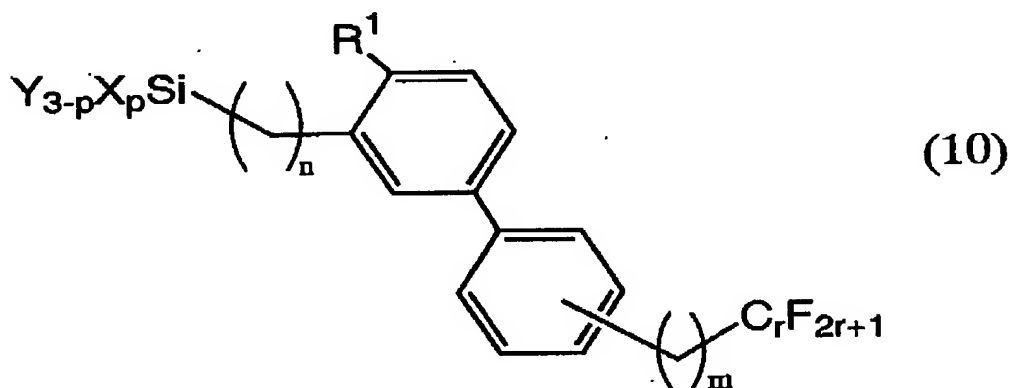
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11. A method for manufacturing a molecular film pattern comprising:

a step of forming a molecular film by using an organic silicon compound as a starting material, the organic silicon compound having a chemical structure represented by the following formula (10); and a step of irradiating the molecular film with a light;

[Chemical 10]



wherein n, m, r, p, R<sup>1</sup>, X, and Y in the formula are as follows:

n is an integer of 0 or more;

m is an integer of 0 or more;

r is a positive integer;

p is an integer of 0 or more;

R<sup>1</sup> is a hydrogen atom, a halogen atom, a perfluoroalkyl group, a hydroxyl group, a thiol group, an amino group, an alkylamino group, an alkoxyl group, an alkyl group containing a hydroxyl group, an alkyl group containing a thiol group, an alkyl group containing an amino group, or an alkyl group containing an alkylamino group;

Y is an alkyl group or an aryl group.

wherein R<sup>1</sup> of the organic silicon compound is a perfluoroalkyl group.

wherein R<sup>1</sup> of the organic silicon compound is a trifluoromethyl group.

wherein the thickness of the molecular film is 3 nm or less.

16. A method for manufacturing a semiconductor device comprising:

17. A semiconductor device formed by a method for manufacturing a semiconductor device according to Claim 16.

18. A method for manufacturing an electro-optical device comprising:  
a step of forming a molecular film pattern according to a method  
for manufacturing a molecular film pattern recited in one of Claims 1 to

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14.

19. An electro-optical device formed by a method for manufacturing an electro-optical device according to Claim 18.

20. A semiconductor device according to Claim 17,

wherein the semiconductor device comprises an area composed of an organic material.

21. An electro-optical device according to Claim 19,

wherein the electro-optical device comprises an organic electroluminescent element.

22. A method for manufacturing an electronic device comprising:

a step performed by using a method for manufacturing a molecular film pattern recited in one of Claims 1 to 14.

23. An electronic apparatus comprising an electro-optical device according to Claim 19 or 21 as a display portion.